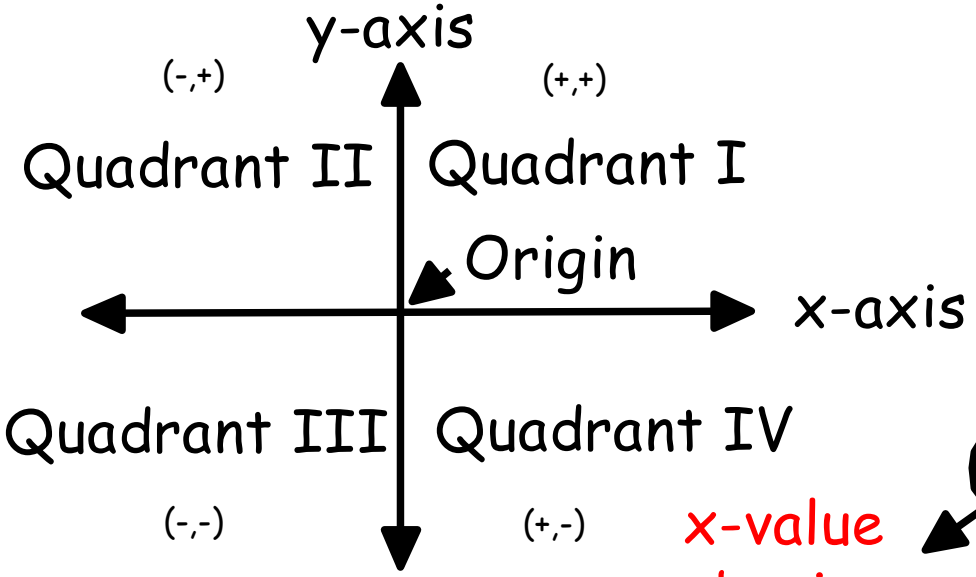
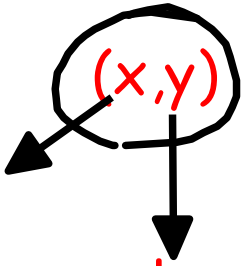
Unit 11
Day 1
The Coordinate Plane
The Slope of a line

3.3 Coordinate Plane/Slope of a line



Coordinate plane
Cartesian plane



Coordinate
Ordered Pair
point

x-value
abscissa

y-value
ordinate

Slope (m)

$$m = \frac{rise}{run} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$a(x_1, y_1)$ $b(x_2, y_2)$

Ex1: (3,-7) (1,1)

$$m = \frac{-7-1}{3-1} = \frac{-8}{2} = -4$$

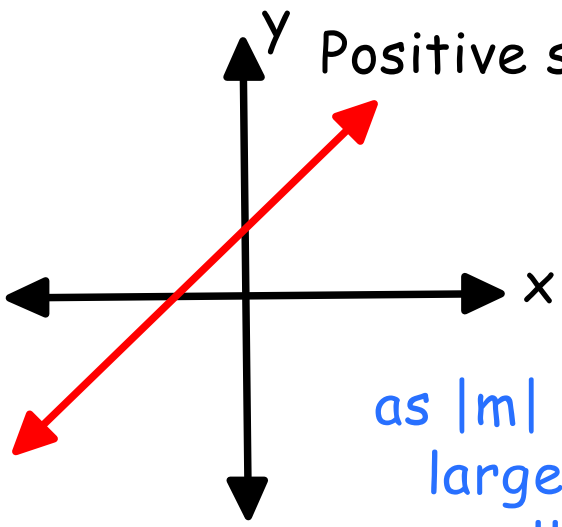
$$m = \frac{1+7}{1-7} = \frac{8}{-2} = -4$$

Ex2: (-4,1) (-4,8)

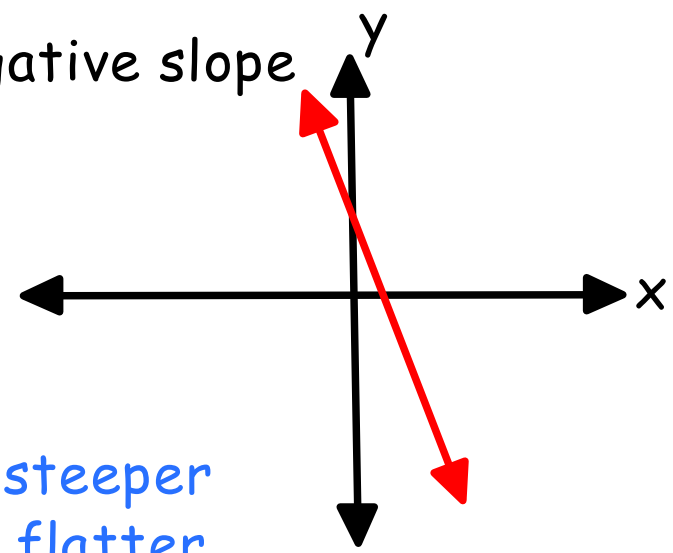
$$m = \frac{1-8}{-4-4} = \frac{-7}{0}$$ UD

GO TO GRAPHER.APP

vertical/ horizontal shifts

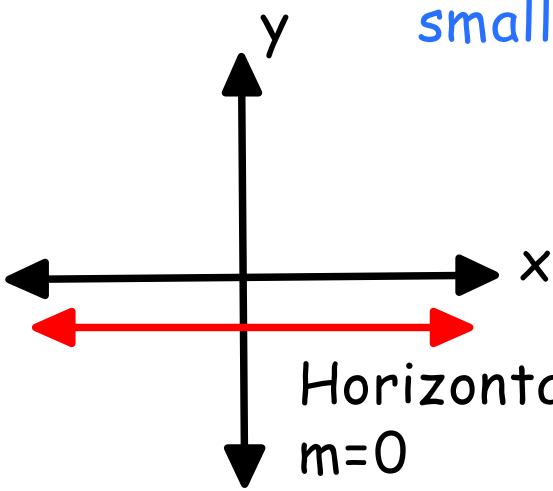


Positive slope

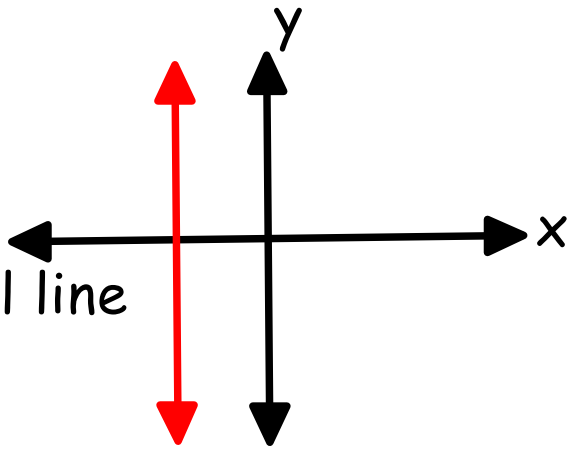


Negative slope

as |m| gets:
larger -line becomes steeper
smaller-line becomes flatter



Horizontal line
m=0



Vertical line
m= ∅

Slope-intercept form of a line

$y = mx + b$

m=slope
b= y-intercept (0,b)

Ex3:

3x - 2y=12 (standard form)

$-2y = -3x + 12$

$y = \frac{3}{2}x - 6$

$m = \frac{3}{2}$

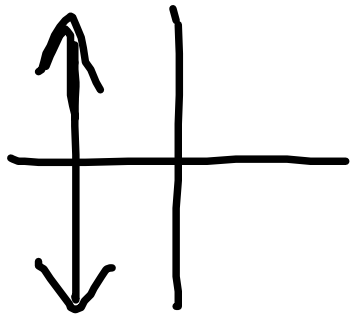
$b = -6$

Ex4:

x = -3

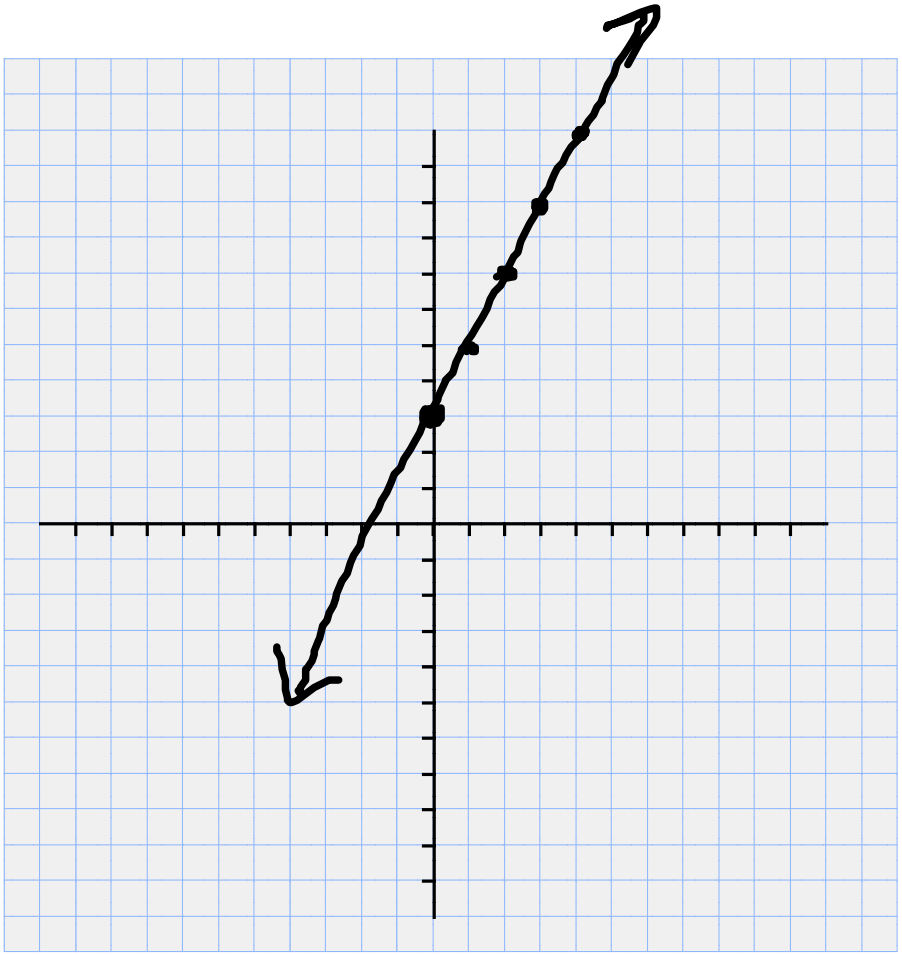
Vertical

UD



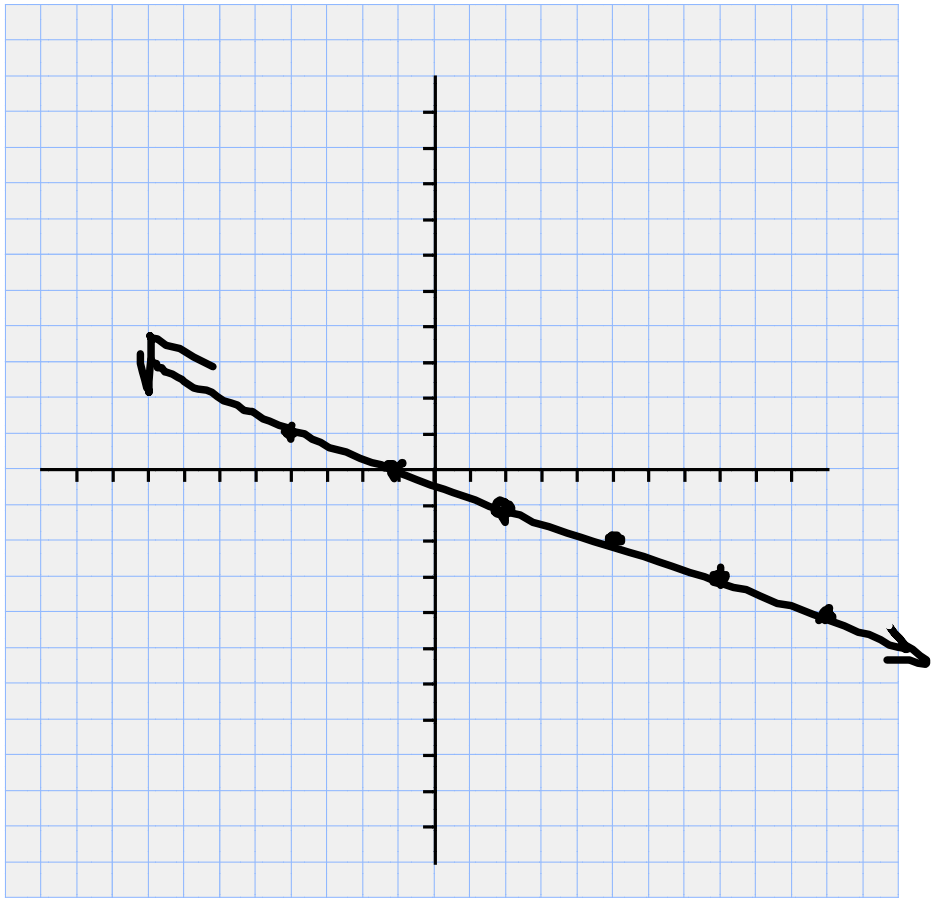
Graph using Slope

Ex5: (0,3); $m=2 = \frac{2}{1}$



Graph using Slope

Ex6: (2,-1) $m=-\frac{1}{3}$



HOMEWORK:

P. 205-7: 17-28, 35-44, 49-54, 57-62